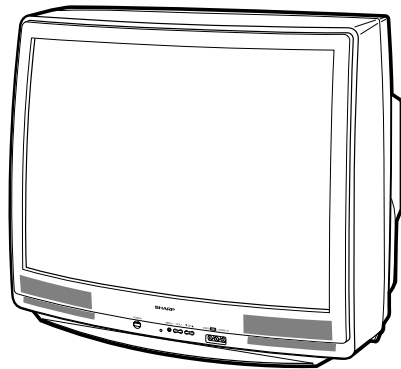


SHARP SERVICE MANUAL



COLOR TELEVISION

Chassis No. C/D-BM

MODELS 27C240

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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ELECTRICAL SPECIFICATIONS

POWER INPUT	120 V AC 60 Hz
POWER RATING	105 W
PICTURE SIZE	2,187cm ² (339sq inch)
CONVERGENCE	Magnetic
SWEEP DEFLECTION	Magnetic
FOCUS	Hi-Bi-Potential Electrostatic
INTERMEDIATE FREQUENCIES	
Picture IF Carrier Frequency	45.75 MHz
Sound IF Carrier Frequency	41.25 MHz
Color Sub-Carrier Frequency	42.17 MHz
	(Nominal)
AUDIO POWER	
OUTPUT RATING	1.5W + 1.5W (at 10% distortion and Dual CH Operate)

SPEAKER	
SIZE	9x5cm (Oval type)
VOICE COIL IMPEDANCE	32 ohm at 400 Hz
ANTENNA INPUT IMPEDANCE	
VHF/UHF	75 ohm Unbalanced
TUNING RANGES	
VHF-Channels	2 thru 13
UHF-Channels	14 thru 69
CATV Channels	1 thru 125
	(EIA, Channel Plan U.S.A.)

Specifications are subject to change without prior notice.

SHARP CORPORATION

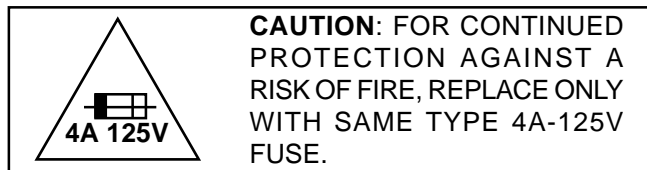
This document has been published to be used for after sales service only.
The contents are subject to change without notice.

IMPORTANT SERVICE SAFETY PRECAUTION

- Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:

WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the chassis is operating.
4. The chassis in this receiver has two ground systems which are separated by insulating material. The non-isolated (hot) ground system is for the B+ voltage regulator circuit and the horizontal output circuit. The isolated ground system is for the low B+ DC voltages and the secondary circuit of the high voltage transformer.
To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.



SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC line cord should be disconnected from AC outlet.)

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage anode completely.

X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation, if the high voltage is as specified in the "High Voltage Check" instructions.
It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in the glass material. The important precaution is to keep the high voltage below the maximum level specified.
2. It is essential that servicemen have available at all times an accurate high voltage meter. The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value –no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and;also, under certain conditions, may produce radiation in exceeding of desirable levels.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver.
Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

IMPORTANT SERVICE SAFETY PRECAUTION

(Continued)

BEFORE RETURNING THE RECEIVER

(Fire & Shock Hazard)

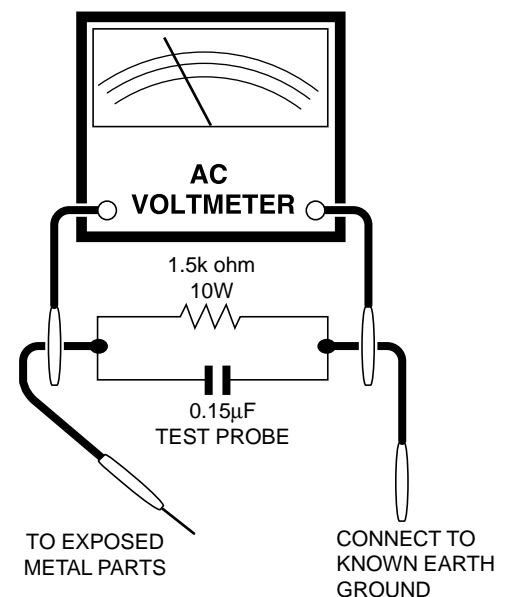
Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.
 - Plug the AC cord directly into a 120 volt AC outlet, (Do not use an isolation transformer for this test).
 - Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15 μ F capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to earth ground.
 - Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.

- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.

All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these check.)

Any current measured must not exceed 0.5 milliamp. Any measurements not within the limits outlined above indicate of a potential shock hazard and corrective action must be taken before returning the instrument to the customer.



SAFETY NOTICE

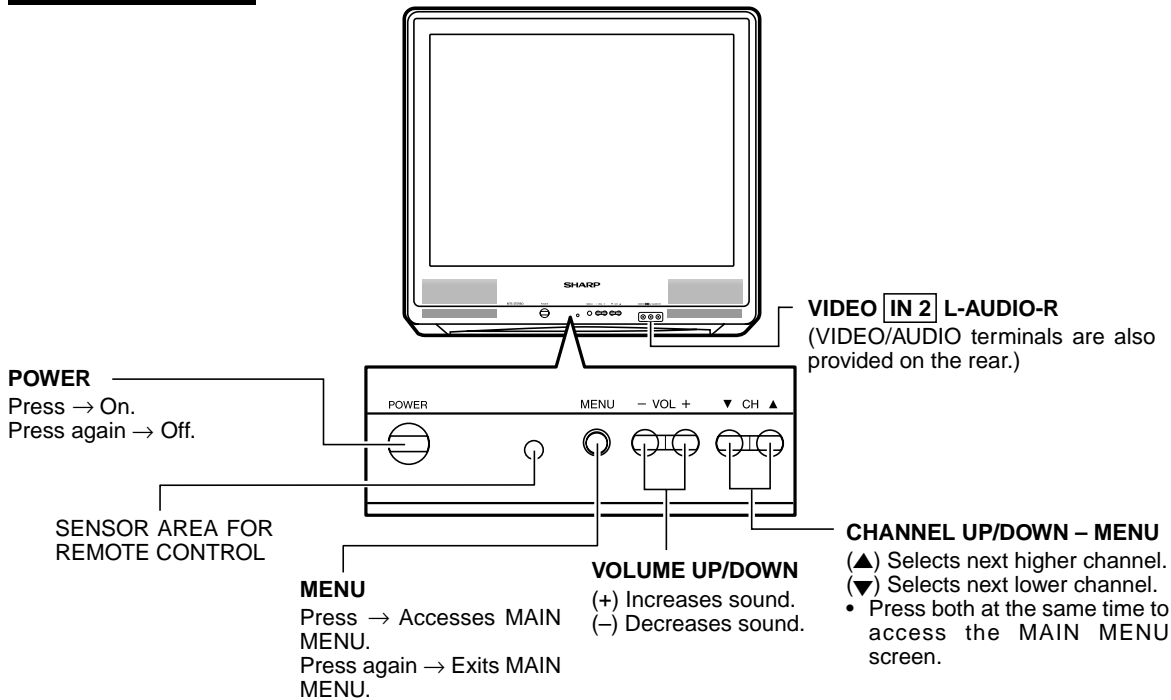
Many electrical and mechanical parts in television receivers have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.

Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by " \triangle " and shaded areas in the Replacement Parts Lists and Schematic Diagrams.

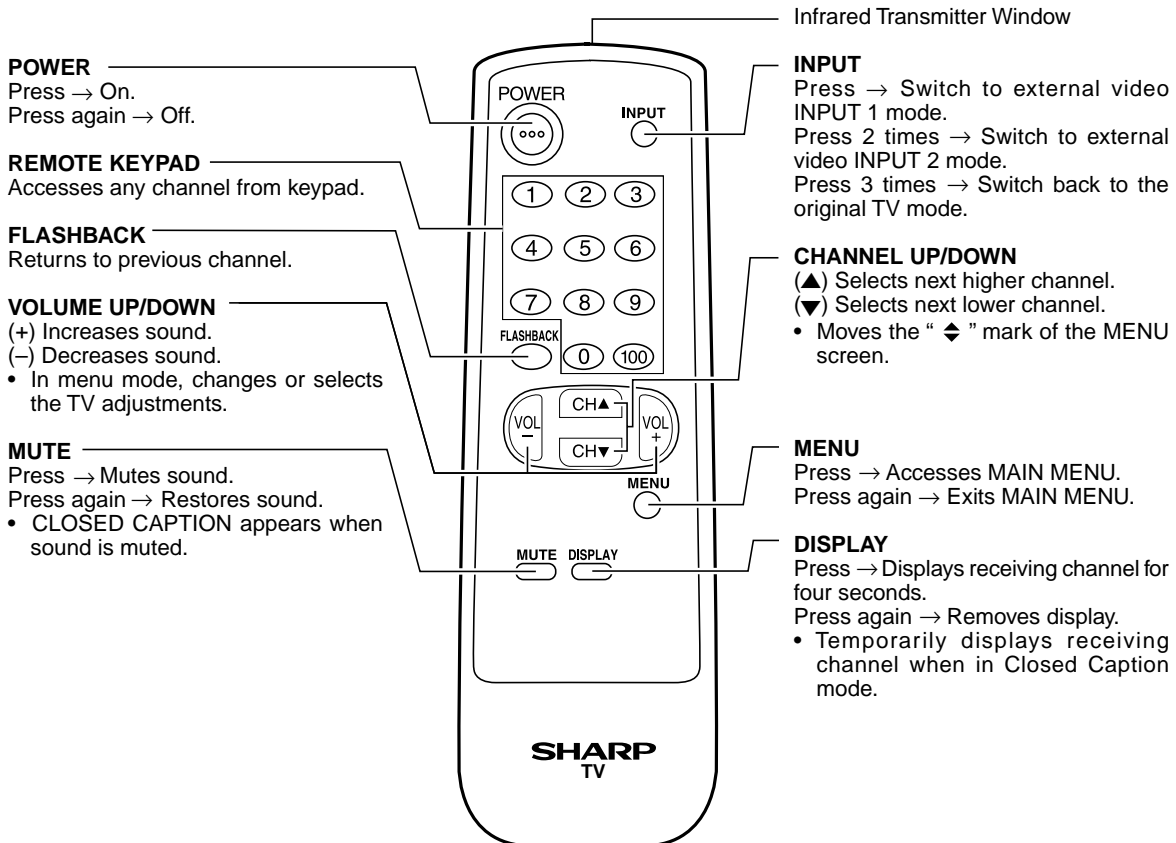
For continued protection, replacement parts must be identical to those used in the original circuit. The use of substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

LOCATION OF USER'S CONTROL (27C240)

Front Panel



Basic Remote Control Functions



INSTALLATION AND SERVICE INSTRUCTIONS

- Note:** (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdrivers or TV alignment tools.
 (2) Before performing adjustments, the TV set must be on at least 15 minutes.

CIRCUIT PROTECTION

The receiver is protected by a 4.0A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.

X-RADIATION PROTECTOR CIRCUIT TEST

After service has been performed on the horizontal deflection system, high voltage system, B+ system, test the X-Radiation protection circuit to ascertain proper operation as follows:

1. Apply 120V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Receive a good local channel.
4. Connect a digital voltmeter to TP653 and make sure that the voltmeter reads $21.9 \pm 1.4V$.
5. Apply external 27.8V DC at TP653 by using an external DC supply, TV must be shut off.
6. To reset the protector, unplug the AC cord and make a short circuit between TP651 and TP652. Now make sure that normal picture appears on the screen.
7. If the operation of the horizontal oscillator does not stop in step 5, the circuit must be repaired before the set is returned to the customer.

HIGH VOLTAGE CHECK

High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:

1. Connect an accurate high voltage meter between ground and anode of picture tube.
2. Operate receiver for at least 15 minutes at 120V AC line voltage, with a strong air signal or a properly tuned in test signal.
3. Enter the service mode and select the service adjustment "S03" and Bus data "01" (Y-mute on).
4. The voltage should be approximately, 30.5kV (at zero beam).
 If a correct reading cannot be obtained, check circuitry for malfunctioning components. After the voltage test, make Y-mute off to the normal mode.

For adjustments of this model, the bus data is converted to various analog signals by the D/A converter circuit.

Note: There are still a few analog adjustments in this series such as focus and master screen voltage. Follow the steps below whenever the service adjustment is required.

To enter the service mode and exit service mode.

While pressing the Vol-up and Ch-up buttons at the sametime, plug the AC cord into a wall socket.

Now, the TV set is switched on and enters the service mode.

To exit the service mode, turn the television off by pressing the power button.

1. Service mode.

Before putting unit into the service mode, check that customer adjustments are in the normal mode. Use the reset function in the video adjustment menu to ensure customer control are in their proper (reset) position.

2. Service number selection.

In the service mode, you will see the window screen as window ①. There are 4 adjustment categories ②DEF, ③SIGNAL, ④FEATURE, ⑤FIX VALUE as show in **Figure A**.

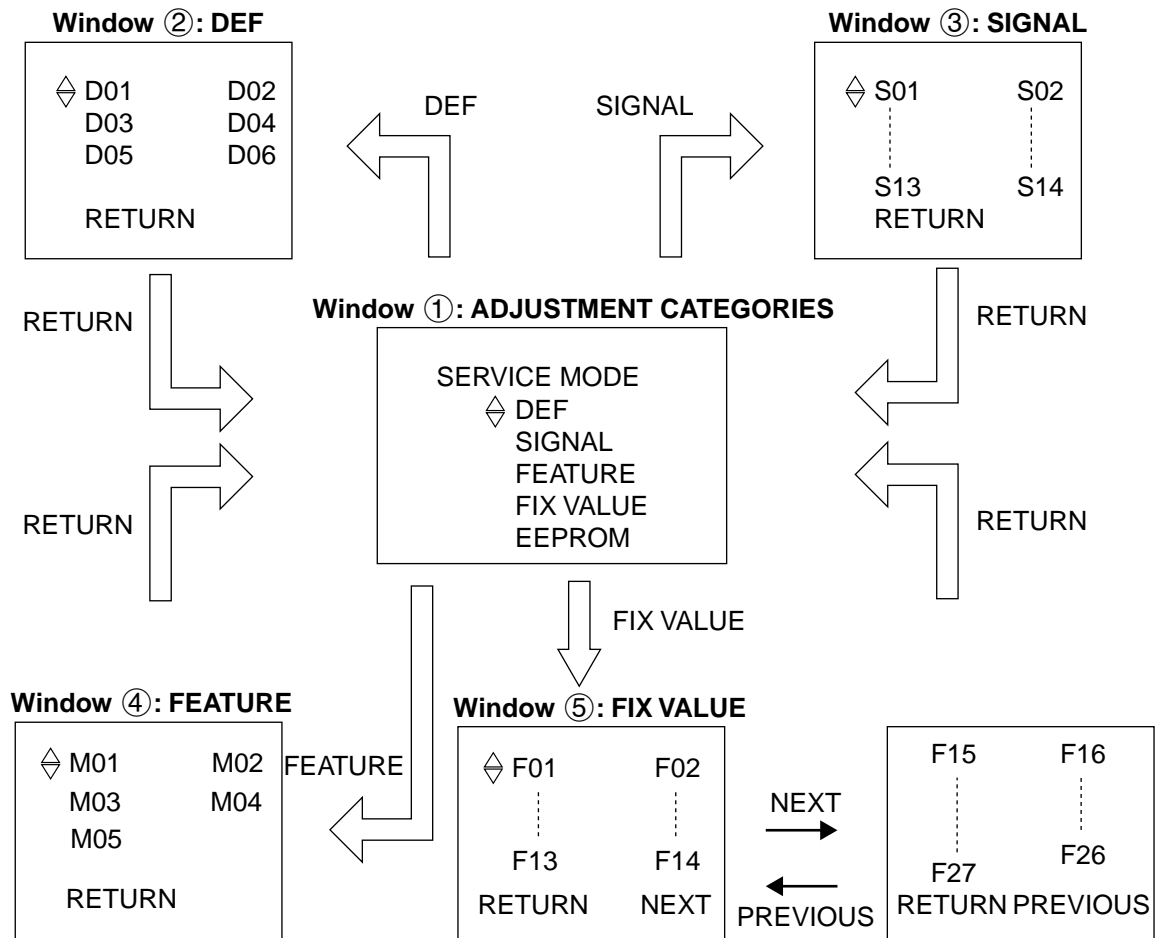


Figure A: ADJUSTMENT CATEGORIES

Press CH UP/DOWN button for selection and enter by VOL UP or VOL DOWN.
Press CH UP/DOWN button to select the adjustment item and VOL UP/DOWN to adjust the data number for each categories.

(OSD disturbance can be erased by R/C display key)

(Note: EEPROM - factory used only)

Below are the adjustments ranges and initial values for FIX VALUE category.

FIX VALUE

SERVICE POSITION	ADJUST ITEM	DATA		
		RANGE	INITIAL VALUE	(Hex)
F01	OPTION 1	00-FF	B1	*1
F02	OPTION 2	00-FF	07	27
F03	E-SAVE	00-3F	2A	2A
F04	TUNER SETUP	00, 01	00	00
F05	R-TONE RD	00-7F	03	03
F06	R-TONE BD	00-7F	7C	7C
F07	B-TONE RD	00-7F	00	00
F08	B-TONE BD	00-7F	04	04
F09	FM LEVEL	00-1F	16	16
F10	AFC GAIN	00, 01	00	00
F11	G DRIVE	00, 0F	0F	0F
F12	FBT BLK SW	00, 01	01	01
F13	V COMP	00-07	07	07
F14	OSD CONT	00-03	01	01
F15	SHARPNESS	00-3F	0D	*2
F16	FLT SYS	00-07	01	01
F17	KILLER OP	00-07	02	02
F18	PRE SHOOT	00-03	00	00
F19	CORING	00-03	04	04
F20	DC REST	00-03	02	02
F21	BS START	00-03	01	01
F22	BS GAIN	00-03	01	01
F23	ABL START	00-07	00	00
F24	R/B ANGLE	00-0F	08	08
F25	H BLK R	00-0F	03	03
F26	H BLK L	00-0F	00	00
F27	YC	00-07	05	04

*1: adjust item

ADJUST ITEM	MODEL	
		27C240
OPTION 1	B1	

*2: type of tuner

TUNER TYPE	CRT	
		VB68ADT2506*S
VTUVT1T5UF202	13	

Table - A

Below are the ranges and initial values for each adjustment and in each categories.

DEF

SERVICE POSITION	ADJUST ITEM	DATA		ADJUSTMENT CONTENTS
		RANGE	INITIAL VALUE	
D01	H-PHASE	00-1F	0C	
D02	V-SIZE	00-7F	40	
D03	V-POSITION	00-3F	20	Must be "20"
D04	CC-POSITION	00-FF	1A	
D05	V-LINEARITY	00-1F	10	Must be "13"
D06	V-S-CORRECTION	00-1F	10	Must be "14"

Table - B

SIGNAL

SERVICE POSITION	ADJUST ITEM	DATA		ADJUSTMENT CONTENTS
		RANGE	INITIAL VALUE	
S01	RF AGC	00-3F	14	
S02	VIDEO LEVEL	00-07	03	Must be "4"
S03	Y-MUTE	00-03	00	"01": Y-MUTE, "02": V-STOP & Y-MUTE "03": Activate color killer circuit.
S04	SUB BIAS	00-FF	30	Must be "30"
S05	R-BIAS	00-FF	00	
S06	G-BIAS	00-FF	00	
S07	B-BIAS	00-7F	00	
S08	R-DRIVE	00-7F	53	
S09	B-DRIVE	00-7F	53	
S10	CONTRAST	00-7F	5A	
S11	TINT	00-7F	40	
S12	COLOR	00-7F	40	
S13	BRIGHTNESS	00-7F	40	
S14	BRIGHTNESS 2	00-7F	40	

Note: Refer to the SERVICE ADJUSTMENT for each corresponding values.

Table - C**FEATURE**

SERVICE POSITION	ADJUST ITEM	DATA		ADJUSTMENT CONTENTS
		RANGE	INITIAL VALUE	
M01	MS LEVEL	00-0F	0A	
M04	LOW SEPARATION	00-3F	20	
M05	HIGH SEPARATION	00-3F	1B	

Note: Refer to the SERVICE ADJUSTMENT for each corresponding values.

Table - D

Holding down both the Vol-up/Ch-down buttons on the TV set at service mode for more than 2 seconds will automatically write the above initial values into IC2102.

PART REPLACED	ADJUSTMENT		NOTES
	NECESSARY	UNNECESSARY	
IC2001		X	Data is stored in IC2102.
IC201	X		The adjustment is needed to compensate for characteristics of parts including IC201.
IC2102	X		Holding down both the Vol-up/Ch-down buttons on the TV set in the service mode for more than 2 seconds will automatically write the above initial values into IC2102.
IC3001	X		Adjust items related MTS only.
CRT	X		Adjust items related to picture tube only.

Table - E

■ SERVICE ADJUSTMENT

Note: Before making the service adjustment, make the bus data settings.

+B Adjustment

1. Receive a good local channel.
2. Select VIDEO ADJUSTMENT RESET on the menu to get the video reset.
3. Connect a DC voltmeter between the +B line (at SW transformer) of R611 and the ground terminal.
4. Make sure that the voltmeter reads $128.5 \pm 1.5V$.

Video Level (TV Det Video Level) Adjustment

1. Receive a good local channel.
2. Enter the service mode signal category and select the service adjustment "S02".
3. Set the data value to "02" first, then adjust the data to "04". (If out of spec, readjust the data in the range of "00" to "07" to obtain a normal contrast level.)

RF AGC Adjustment

1. Receive a good local channel.
2. Enter the service mode signal category and select the service adjustment "S01".
3. Set the data value to point where no noise or beat appears.
4. Select another channel to confirm that no noise or beat appears.

Note: You have to exit the service mode first to select another channel.

Screen Adjustment

1. Connect to oscilloscope probe between TP854 and ground of the CRT unit.
2. Receive a good local channel.
3. Enter the service mode Signal category and set the service adjustment "S04" to step 30. Then select the service adjustment "S12" and set the data value to "00" to set the color level to the minimum level. (record the original data first). You may skip this step, if you selected a B/W picture or monoscope pattern. Set also the "S05/S06/S07" data to minimum level ("00").

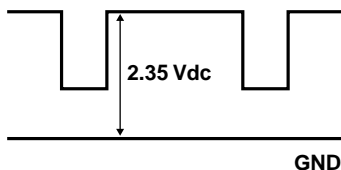


Figure B: WAVEFORM FOR SCREEN ADJUSTMENT

4. Select the service adjustment "S03" and set the data value to "01" to turn off the luminance signal (Y-mute).
5. Select the service adjustment "S14" and adjust the data value to obtain 2.35 volts as shown in **Figure B**.
6. Adjust the master screen control until the raster darkens to the point where raster is barely seen.

7. Adjust the service adjustment "S05" red, "S06" green, "S07" blue to obtain a good grey scale with normal white at low brightness level.
8. Select the service a adjustment "S03" and reset data to "00". Select the service adjustment "S12" and reset data to obtain normal color level.
9. Remove probe and reset the master screen control to obtain normal brightness range.

White Balance Adjustment

1. Receive a good local channel.
2. Select the service adjustment "S12" and set the data value to "00" to set the color level to the minimum. You may skip this step, if you selected a B/W picture or monoscope.
3. Alternately adjust the service adjustment data of "S08" and "S09" until a good grey scale with normal white is obtained.
4. Select the service adjustment "S12" and reset data to obtain normal color level.

Sub-Picture Adjustment

1. Receive a good local channel.
2. Make sure the customer picture control is set to maximum.
3. Enter the service mode and select the service adjustment "S10".
4. Adjust the data value to achieve normal contrast range.

Sub-Tint Adjustment

1. Receive a good local channel.
2. Set the customer tint control to the center of it's range.
3. Enter the service mode and select the service adjustment "S11".
4. Adjust "S11" data value to obtain normal fresh tones.

Sub-Color Adjustment

1. Receive a good local channel.
2. Make sure the customer color control is set to center position.
3. Enter the service mode and select the service adjustment "S12".
4. Adjust "S12" data value to obtain normal color level.

Sub-Brightness Adjustment

1. Receive a good local channel.
2. Make sure the customer brightness control is set to center position.
3. Enter the service mode and select the service adjustment "S13".
4. Adjust "S13" data value to obtain normal brightness level.

Vertical-Size, V-Linearity and V-S Correction Adjustments

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D02" for Vertical Size, "D05" for V-Linearity and "D06" for V-S Correction Adjustment.
3. Set in order "D05" for V-Linearity, "D06" for V-S Correction and set the data to get the best linearity.
4. Then adjust "D02" data until it become a proper vertical size.

Horizontal Position Adjustment

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D01".
3. Adjust "D01" data value to center the picture.

Vertical-Phase Adjustment

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D03".
3. Adjust "D03" bus data to get the most acceptable vertical position.

**Note: The step range is 20 (32)+12 (3 steps)/
-20 (5 steps).
(Push once move 4 steps.)**

Caption Position Adjustment (Horizontal)

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D04".
3. A black text box will appear on the screen. (see **Figure C.** below)
4. Adjust "D04" data value to balance the text box position in the center. (A=B).

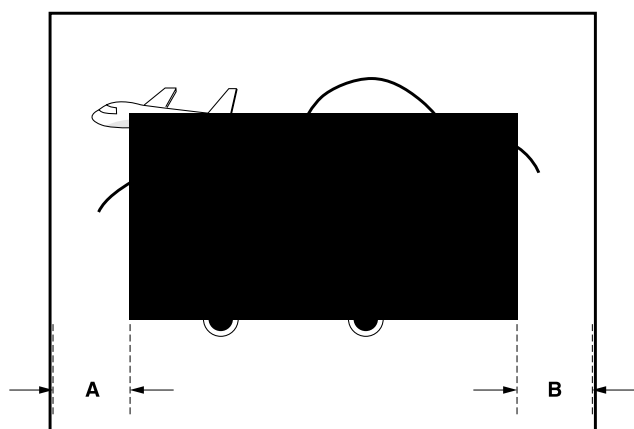


Figure C.

■ MTS ADJUSTMENT

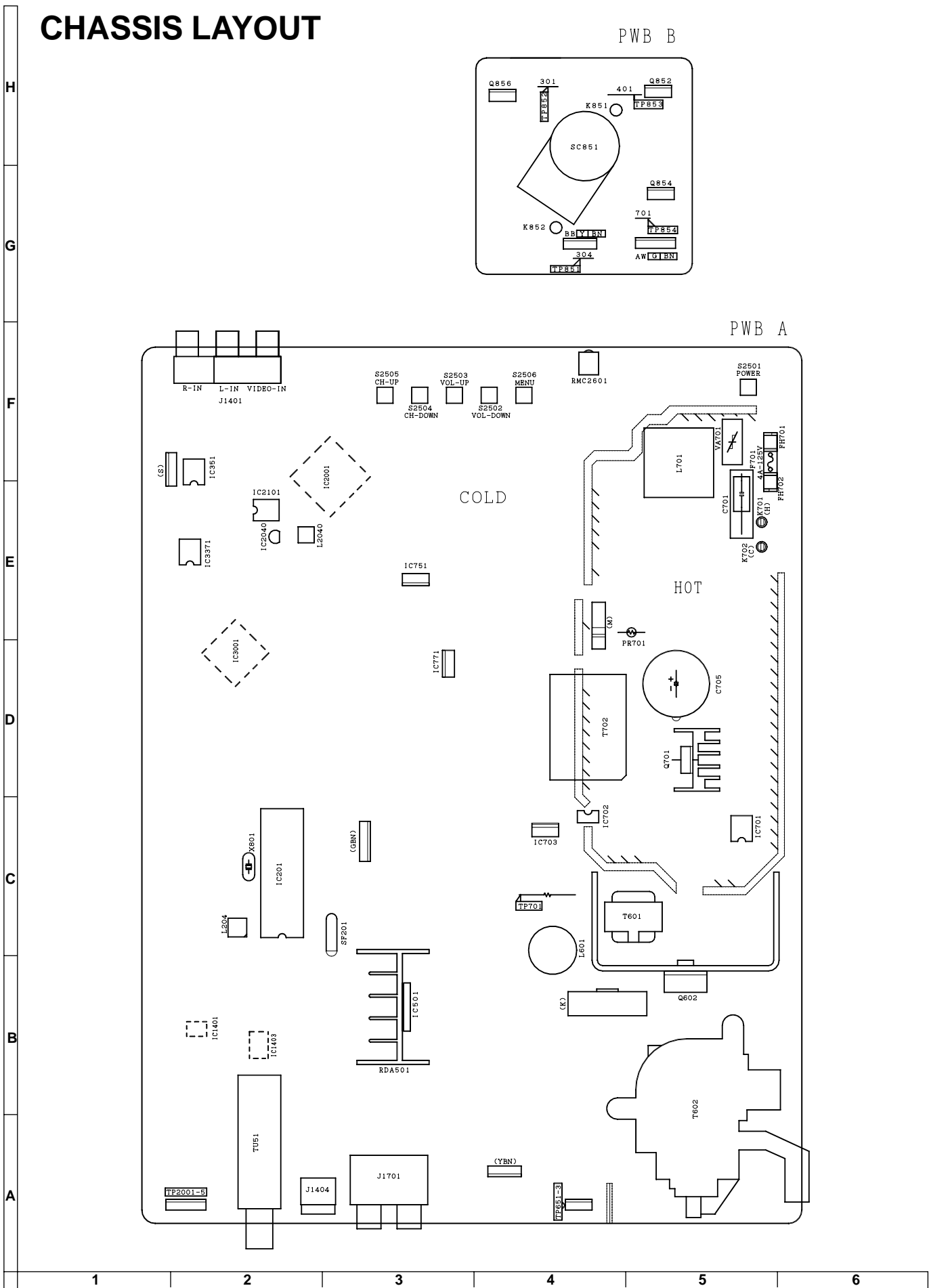
MTS Level Adjustment

1. Feed the following monaural signal to pin (14) of IC3001.
Monaural signal: 300Hz, 245mVrms
2. Connect the rms voltmeter to pin (39) of IC3001.
3. Enter the service mode and select the service adjustment "M01".
4. Adjust the data so that the rms voltmeter reads 490 ±10mVrms.

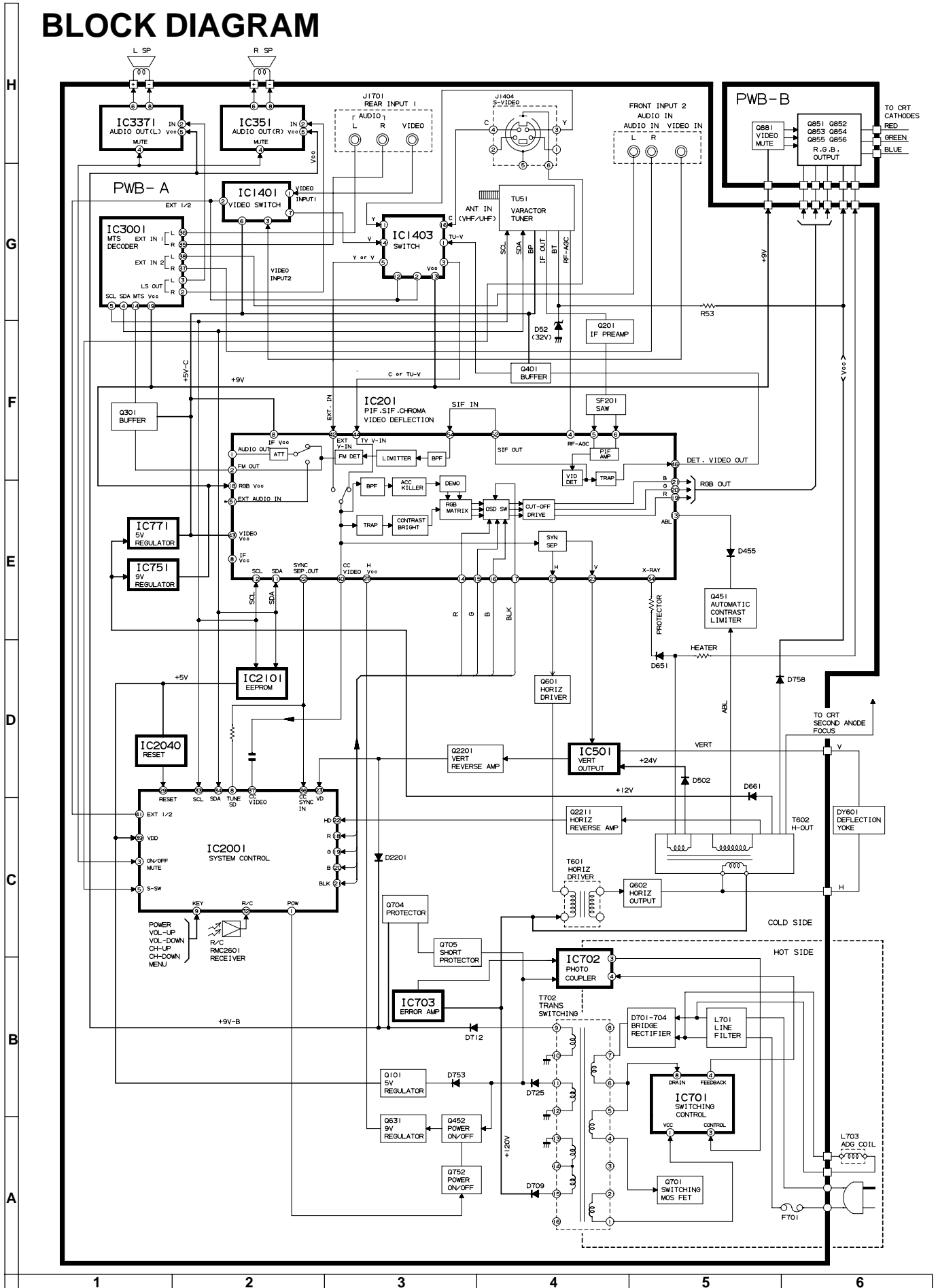
Separation Adjustment

1. Connect the rms voltmeter to pin (39) of IC3001.
2. Receive the following composite stereo signal 1.
Composite stereo signal: 30% modulation, left channel only, noise reduction on, 300Hz
3. Enter the service mode and select the service adjustment "M04".
4. Adjust the data until the AC voltage reading of the rms voltmeter is minimum.
5. Receive the following composite stereo signal 2.
Stereo signal: 30% modulation, left channel only, noise reduction on, 3kHz
6. Enter the service mode and select the service adjustment "M05".
7. Adjust the data until the AC voltage reading of the rms voltmeter is minimum.
8. Take the above steps 1 thru 7 again for fine adjustment.

CHASSIS LAYOUT



BLOCK DIAGRAM



DESCRIPTION OF SCHEMATIC DIAGRAM

NOTES:

1. The unit of resistance "ohm" is omitted.
($K=k\Omega=1000\Omega$, $M=M\Omega$)
2. All resistors are 1/16 watt, unless otherwise noted.
3. All capacitors are μF , unless otherwise noted.
($P=pF=\mu\mu F$)
4. (G) indicates $\pm 2\%$ tolerance may be used.
5. $\overline{\text{---}}$ indicates line isolated ground.

VOLTAGE MEASUREMENT CONDITIONS:

1. All DC voltages are measured with DVM connected between points indicated and chassis ground, line voltage set at 120V AC and all controls set for normal picture unless otherwise indicated.
2. All voltages measured with 1000 μ V B & W or Color signal.

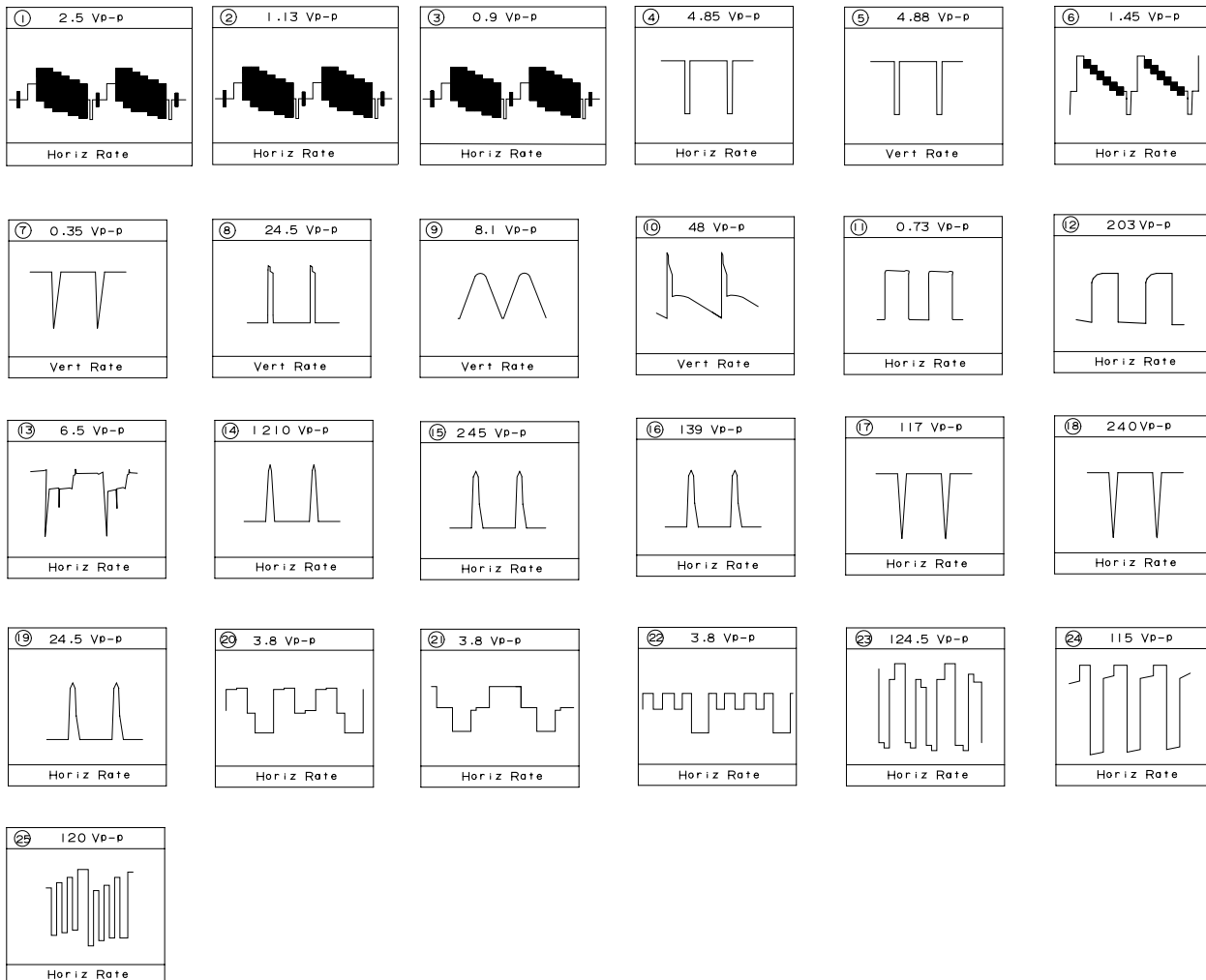
WAVEFORM MEASUREMENT CONDITIONS:

1. Photographs taken on a standard gated color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.
2. \odot indicates waveform check points (See chart, waveforms are measured from point indicated to chassis ground.)

\triangle AND SHADED () COMPONENTS = SAFETY RELATED PARTS.
 \blacktriangle MARK= X-RAY RELATED PARTS.

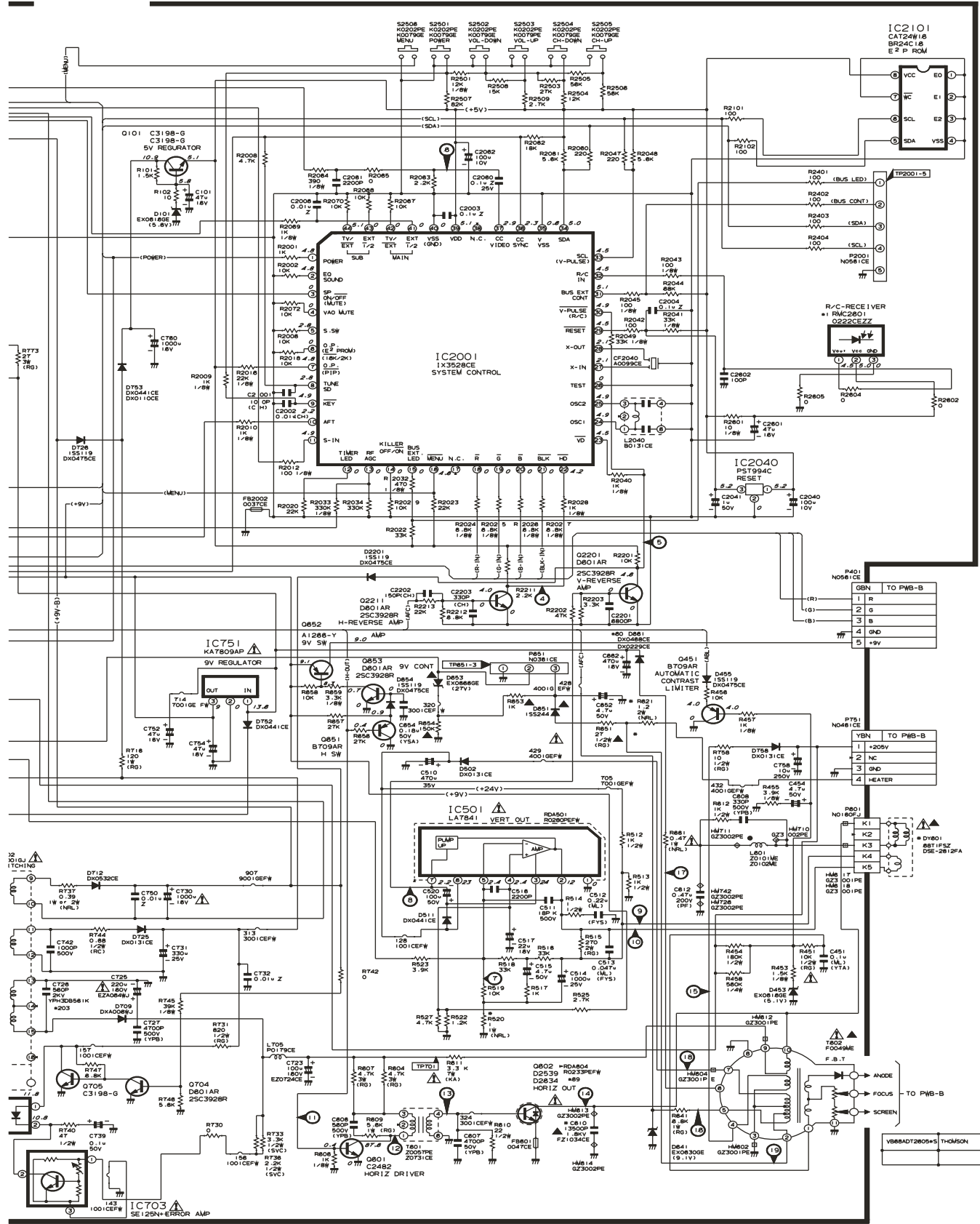
This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.

WAVEFORMS



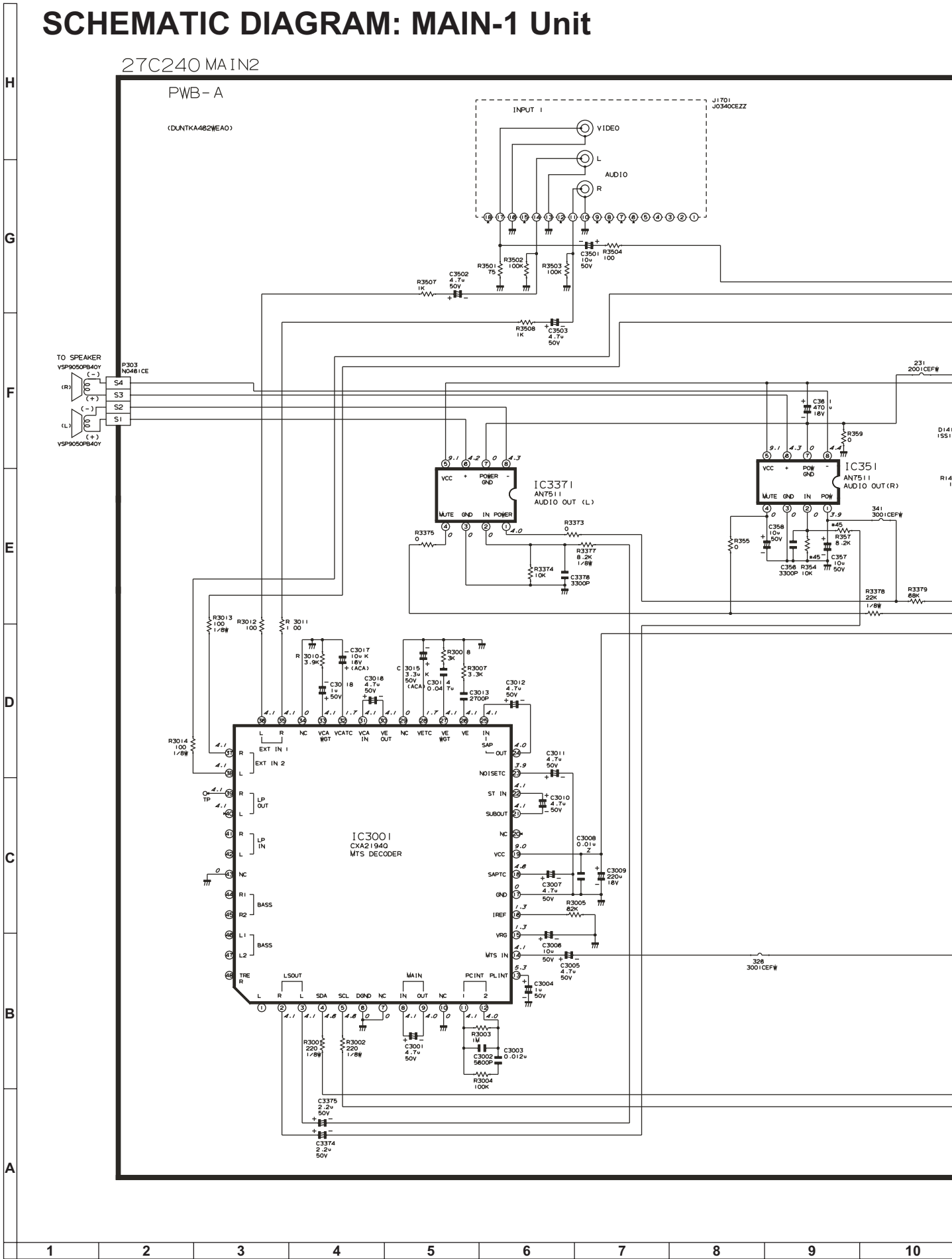
NOTE 1: THE UNIT OF RESISTANCE "OHM" IS OMITTED
 (K=1000 OHMS, M=MEG OHM).
 2. ALL RESISTORS ARE 1/8 WATT UNLESS OTHERWISE NOTED.
 3. UNIT OF ALL CAPACITORS ARE F WITH PREFIX SYMBOL.
 (U, P, ETC).

▲ AND SHADED □ COMPONENTS
 = SAFETY RELATED PARTS.
 ▲ MARK = X-RAY RELATED PARTS.

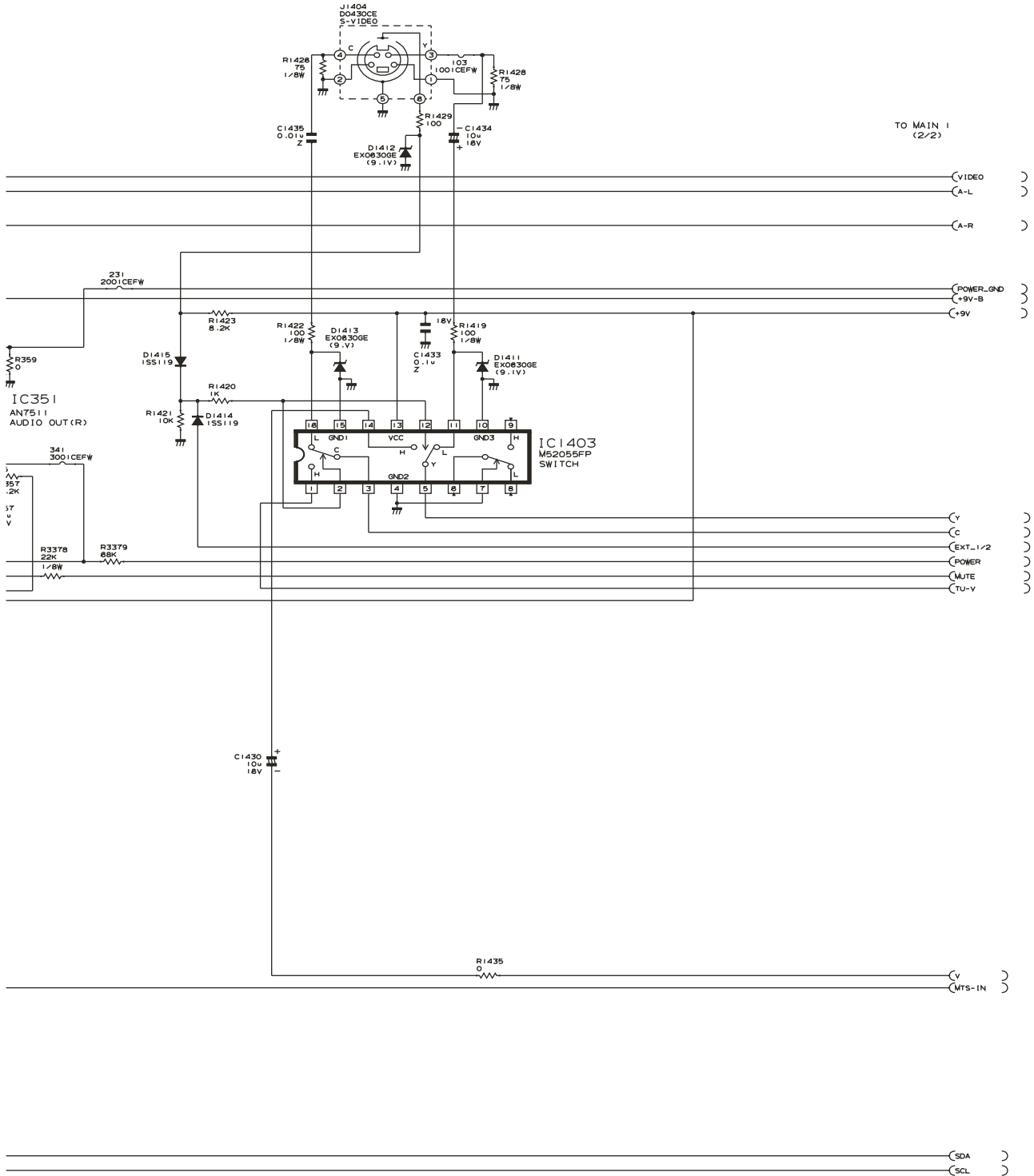


SCHEMATIC DIAGRAM: MAIN-1 Unit

27C240 MAIN2



NOTE: 1. THE UNIT OF RESISTANCE "OHM" IS OMITTED
 (K=1000 OHMS, M=MEG OHM).
 2. ALL RESISTORS ARE 1/16 WATT UNLESS OTHERWISE NOTED.
 3. UNIT OF ALL CAPACITORS ARE F WITH PREFIX SYMBOL
 (u, P, ETC).



10	11	12	13	14	15	16	17	18	19
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SCHEMATIC DIAGRAM: CRT Unit

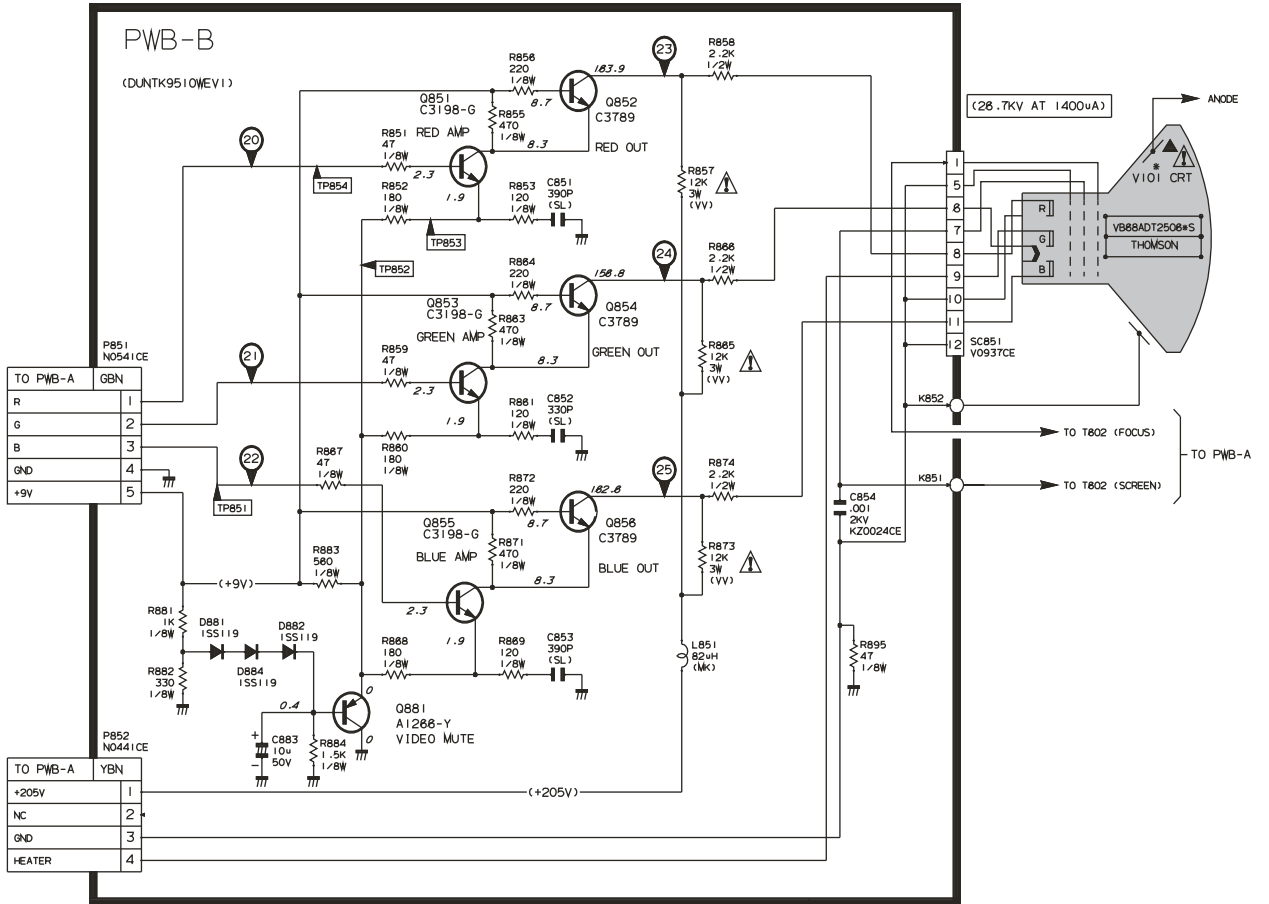
H
G
F
E
D
C
B
A

CRT 27C240

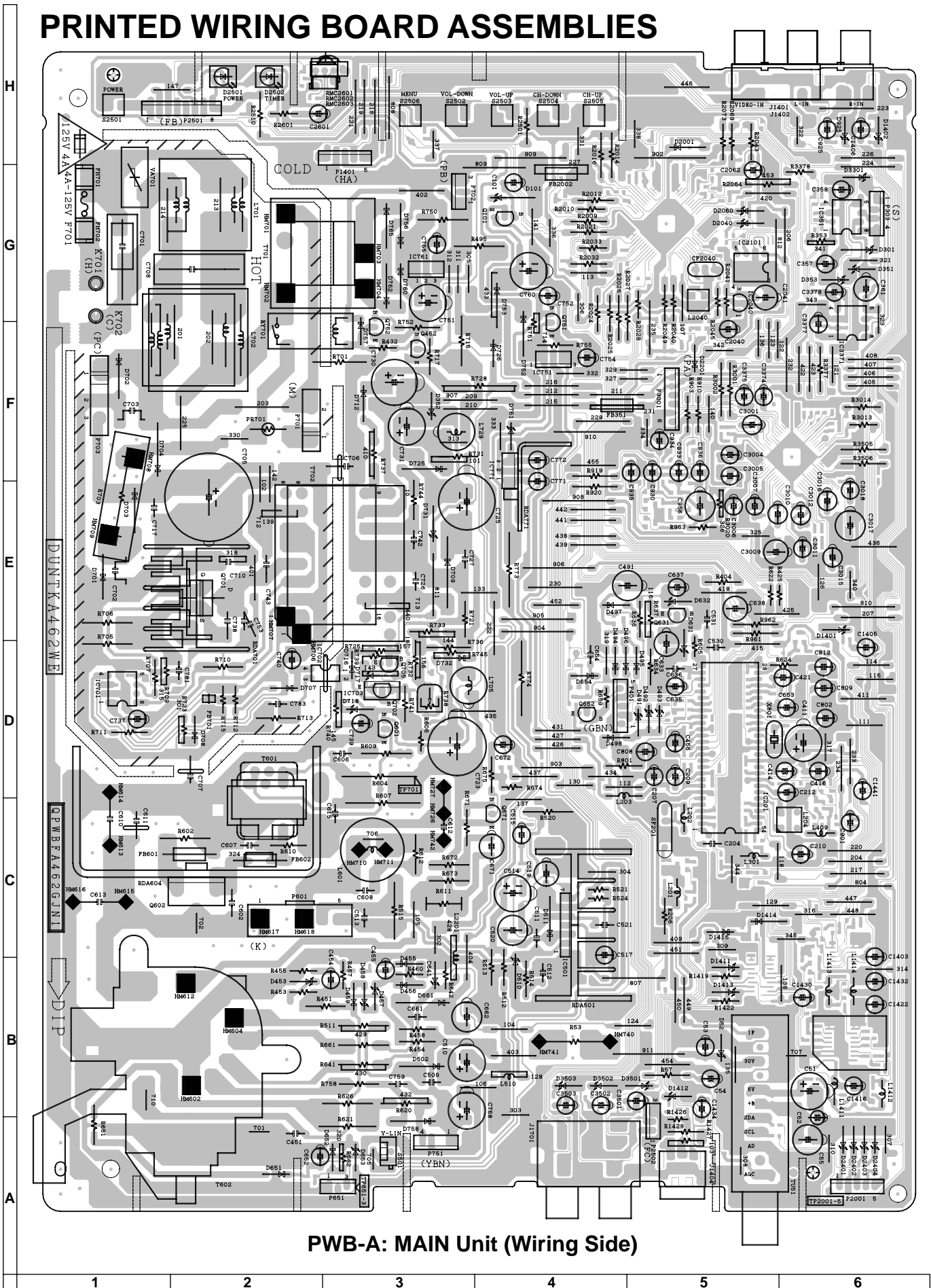
REPLACE WITH A PICTURE TUBE OF THE SAME TYPE NUMBER FOR CONTINUED SAFETY.

AND SHADED () COMPONENTS = SAFETY RELATED PARTS.
 ▲ MARK = X-RAY RELATED PARTS.

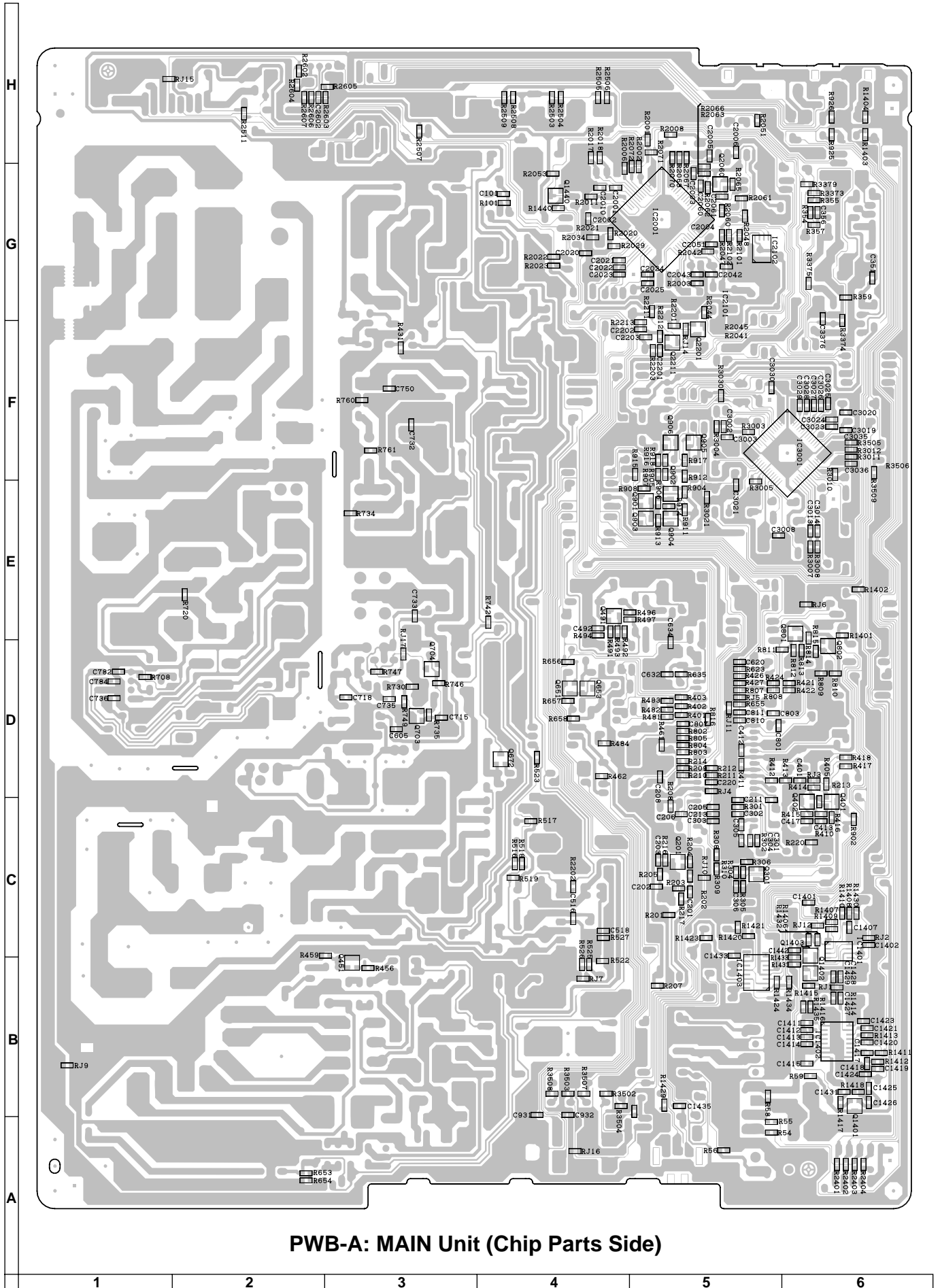
NOTE: 1. THE UNIT OF RESISTANCE "OHM" IS OMITTED (K=1000 OHMS, M=MEGAOHM).
 2. THE UNIT OF ALL CAPACITORS ARE F WITH PREFIX SYMBOL (u, p, ETC).



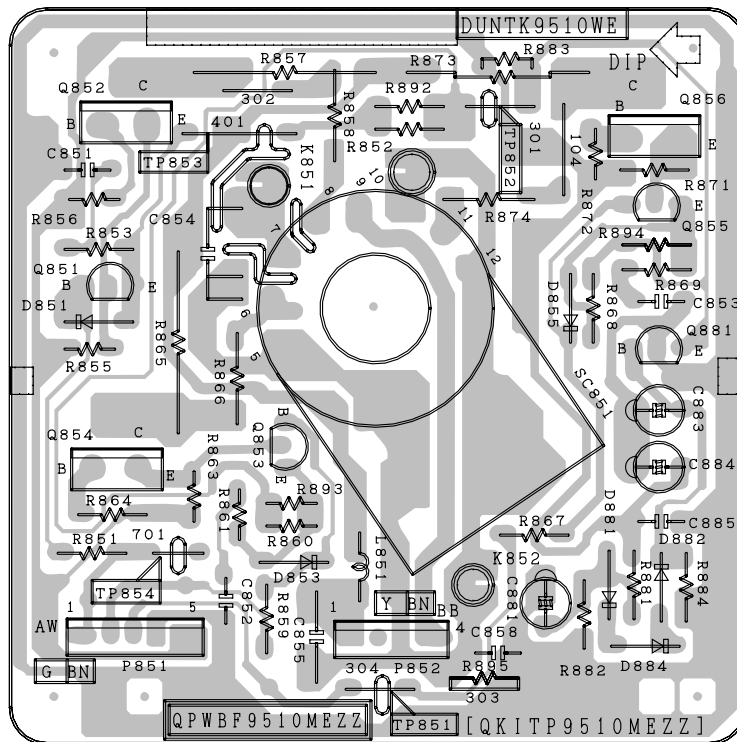
PRINTED WIRING BOARD ASSEMBLIES



PWB-A: MAIN Unit (Wiring Side)



H
G
F
E
D
C
B
A



PWB-B: CRT Unit (Wiring Side)

1 2 3 4 5 6

PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual; electrical components having such features are identified by Δ and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which does not have the same safety characteristic as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

- | | |
|-----------------|----------------|
| 1. MODEL NUMBER | 2. REF. NO. |
| 3. PART NO. | 4. DESCRIPTION |

in **USA**: Contact your nearest SHARP Parts Distributor to order. For location of SHARP Parts Distributor, Please call Toll-Free; 1-800-BE-SHARP

« MARK: SPARE PARTS-DELIVERY SECTION

p MARK: X-RAY RELATED PARTS

Ref. No.	Part No.	★	Description	Code
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PICTURE TUBE

▲ Δ V101	VB68ADT2506*S	X	Picture Tube(I.T.C)	CA
Δ L703	RCILG0038MEZZ	X	Degaussing Coil	AH
	LHLDW0102GJKZ	X	WIRE TIE (20.32 CM)	AB
	MSPRT0002MEZZ	X	SPRING	AB
	QCNW-0239MEZZ	X	Connecting Cord(K)	AF
	QEARC2702MEZZ	X	Grounding Strap	AC

PRINTED WIRING BOARD ASSEMBLIES (NOT REPLACEMENT ITEM)

PWB-A	DUNTKA462WEA0	—	MAIN Unit	—
PWB-B	DUNTK9510WEV1	—	CRT Unit	—

Ref. No.	Part No.	★	Description	Code
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PWB-A: DUNTKA462WEA0 MAIN UNIT

TUNER

NOTE: THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY

TU51	VTUVT1T5UF202	X	Tuner	AP
INTEGRATED CIRCUITS				
Δ IC201	RH-IX3354CEN1	X	IX3354CE	AM
IC351	VHIAN7511//1	X	AN7511	AC
Δ IC501	VHILA7841//1	X	LA7841	AF
Δ IC701	VHITEA1507/1	X	TEA1507	AE
Δ IC702	RH-FX0029CEZZ	X	PS2501-1	AB
Δ IC703	VHISE125N++-F	X	SE125N	AD
Δ IC751	VHIKA7809AP-1	X	KA7809AP	AC
Δ IC771	VHIKA7805AP-1	X	KA7805AP	AC
IC1401	VHIMM1111XF1EY	X	MM1111XFBCE	AC
IC1403	VHIM52055FP-1Y	X	M52055FP	AD
IC2001	RH-IX3528CEZZQ	X	IX3528CE	AN
IC2040	VHIRST994C/-1+	X	PST994C	AB
IC2101	VHICAT24W16-1	X	CAT24W16P	AC
IC3001	VHICXA2194Q-1Y	X	CXA2194Q	AP
IC3371	VHIAN7511//1	X	AN7511	AC

TRANSISTORS

Q101	VS2SC3198-G-1+	X	2SC3198-G	AB
Q201	VS2SC2735//1EY	X	2SC2735	AB
Q301	VS2SD601AR/-1Y	X	2SD601AR	AB
Q401	VS2SD601AR/-1Y	X	2SD601AR	AB
Q451	VS2SB709AR/-1Y	X	2SB709AR	AB
Q452	VS2SA1266-Y-1+	X	2SA1266(Y)	AB
Q491	VS2SB709AR/-1Y	X	2SB709AR	AB
Q601	VS2SC2482//1+	X	2SC2482	AB
Δ Q602	VS2SD2539//1E	X	2SD2539	AG
Q631	VS2SC3198-G-1+	X	2SC3198-G	AB
Q651	VS2SB709AR/-1Y	X	2SB709AR	AB
Q652	VS2SA1266-Y-1+	X	2SA1266(Y)	AB
Q653	VS2SD601AR/-1Y	X	2SD601AR	AB
Δ Q701	VSSPA07N603-1	X	SPA07N60C3	AG
Q704	VS2SD601AR/-1Y	X	2SD601AR	AB
Q705	VS2SC3198-G-1+	X	2SC3198-G	AB
Q752	VS2SC3198-G-1+	X	2SC3198-G	AB
Q1403	VS2SD601AR/-1Y	X	2SD601AR	AB
Q1440	VS2SD601AR/-1Y	X	2SD601AR	AB
Q2201	VS2SD601AR/-1Y	X	2SD601AR	AB
Q2211	VS2SD601AR/-1Y	X	2SD601AR	AB

DIODES

D52	RH-EX0676GEZZY	X	Zener Diode	32V	AB
D101	RH-EX0616GEZZY	X	Zener Diode	5.6V	AB
D453	RH-EX0616GEZZY	X	Zener Diode	5.6V	AB
D455	VHD1SS119//1Y	X	Diode		AA
D494	VHD1SS119//1Y	X	Diode		AA
D495	VHD1SS119//1Y	X	Diode		AA
D496	VHD1SS119//1Y	X	Diode		AA
D497	VHD1SS119//1Y	X	Diode		AA
Δ D502	RH-DX0131CEZZY	X	Diode		AB
D511	RH-DX0441CEZZY	X	Diode		AB
D632	RH-EX0630GEZZY	X	Zener Diode	9.1V	AB
D641	RH-EX0630GEZZY	X	Zener Diode	9.1V	AB
▲ Δ D651	VHD1SS244//1Y	X	Diode		AB
▲ Δ D653	RH-EX0666GEZZY	X	Zener Diode,	27V	AB
D654	VHD1SS119//1Y	X	Diode		AA
Δ D661	RH-DX0468CEZZ	X	Diode		AB
Δ D701	RH-DX0154CEZZY	X	Diode		AB
Δ D702	RH-DX0154CEZZY	X	Diode		AB
Δ D703	RH-DX0154CEZZY	X	Diode		AB
Δ D704	RH-DX0154CEZZY	X	Diode		AB
D707	VHD1SS119//1Y	X	Diode		AA

Ref. No.	Part No.	★	Description	Code	Ref. No.	Part No.	★	Description	Code
PWB-A: DUNTKC290WEA4									
MAIN UNIT									
CAPACITORS									
<i>[EL... Electrolytic, M-Poly... Metalized Polypro Film]</i>									
C801	VCCCCY1HH180JY	X	18p 50V	Ceramic AA	RJ3	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C807	VCKYCY1EF104ZY	X	0.1 25V	Ceramic AA	RJ4	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C808	VCEA0A1HW106M+	X	10 50V	EL. AB	RJ5	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C809	VCEA0A1HW105M+	X	1 50V	EL. AB	RJ6	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C811	VCKYCY1CB473KY	X	0.047 16V	Ceramic AA	RJ10	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C812	VCEA0A1HW474M+	X	0.47 50V	EL. AB	RJ11	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C901	VCEA0A1HW105M+	X	1 50V	EL. AB	RJ14	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C925	VCEA0A1HW106M+	X	10 50V	EL. AB	RJ15	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C1401	VCKYCY1EF104ZY	X	0.1 25V	Ceramic AA	RJ16	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C1402	VCKYCY1EF104ZY	X	0.1 25V	Ceramic AA	RJ17	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C1403	VCEA0A1CW476M+	X	47 16V	EL. AB	△ R53	VRS-RG3LB223J+	X	22k 3W	M-Ox. AB
C1405	VCEA0A1HW106M+	X	10 50V	EL. AB	R54	VRS-CY1JF101JY	X	100 1/16W	M-Ox. AA
C1406	VCEA0A1HW106M+	X	10 50V	EL. AB	R55	VRS-CY1JF101JY	X	100 1/16W	M-Ox. AA
C1430	VCEA0A1CW106M+	X	10 16V	EL. AB	R56	VRS-CY1JF823JY	X	82k 1/16W	M-Ox. AA
C1433	VCKYCY1CF104ZY	X	0.1 16V	Ceramic AA	R57	VRD-RA2BE473JY	X	47k 1/8W	Carbon AA
C1434	VCEA0A1CW106M+	X	10 16V	EL. AB	R58	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C1435	VCKYCY1HF103ZY	X	0.01 50V	Ceramic AA	R59	VRS-CY1JF1R0JY	X	1 1/16W	M-Ox. AA
C1441	VCEA0A1CW106M+	X	10 16V	EL. AB	R101	VRS-CY1JF152JY	X	1.5k 1/16W	M-Ox. AA
C1442	VCCCCY1HH220JY	X	22p 50V	Ceramic AA	R102	VRS-CY1JF100JY	X	10 1/16W	M-Ox. AA
C2001	VCCCCY1HH101JY	X	100p 50V	Ceramic AA	R201	VRS-CY1JF151JY	X	150 1/16W	M-Ox. AA
C2002	VCKYCY1HF103ZY	X	0.01 50V	Ceramic AA	R202	VRS-CY1JF122JY	X	1.2k 1/16W	M-Ox. AA
C2003	VCKYCY1EF104ZY	X	0.1 25V	Ceramic AA	R203	VRS-CY1JF682JY	X	6.8k 1/16W	M-Ox. AA
C2004	VCKYCY1EF104ZY	X	0.1 25V	Ceramic AA	R204	VRS-CY1JF270JY	X	27 1/16W	M-Ox. AA
C2006	VCKYCY1HF103ZY	X	0.01 50V	Ceramic AA	R205	VRS-CY1JF331JY	X	330 1/16W	M-Ox. AA
C2040	VCEA0A1AW107M+	X	100 10V	EL. AB	R206	VRD-RA2EE151JY	X	150 1/4W	Carbon AA
C2041	VCEA0A1HW105M+	X	1 50V	EL. AB	R207	VRS-CY1JF273JY	X	27k 1/16W	M-Ox. AA
C2060	VCKYCY1EF104ZY	X	0.1 25V	Ceramic AA	R209	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C2061	VCKYCY1HB222KY	X	2200p 50V	Ceramic AA	R210	VRS-CY1JF104JY	X	100k 1/16W	M-Ox. AA
C2062	VCEA0A1AW107M+	X	100 10V	EL. AB	R211	VRS-CY1JF104JY	X	100k 1/16W	M-Ox. AA
C2201	VCKYCY1HB682KY	X	6800p 50V	Ceramic AA	R212	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C2202	VCCCCY1HH151JY	X	150p 50V	Ceramic AA	R220	VRS-CY1JF331JY	X	330 1/16W	M-Ox. AA
C2203	VCCCCY1HH331JY	X	330p 50V	Ceramic AB	R301	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA
C2601	VCEA0A1CW476M+	X	47 16V	EL. AB	R302	VRS-CY1JF152JY	X	1.5k 1/16W	M-Ox. AA
C2602	VCCCCY1HH101JY	X	100p 50V	Ceramic AA	R304	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA
C3001	VCEA0A1HW475M+	X	4.7 50V	EL. AB	R305	VRS-CY1JF152JY	X	1.5k 1/16W	M-Ox. AA
C3002	VCKYCY1HB562KY	X	5600p 50V	Ceramic AA	R306	VRS-CY1JF333JY	X	33k 1/16W	M-Ox. AA
C3003	VCKYCY1EB123KY	X	0.012 25V	Ceramic AA	R308	VRS-CY1JF101JY	X	100 1/16W	M-Ox. AA
C3004	VCEA0A1HW105M+	X	1 50V	EL. AB	R354	VRS-CY1JF103JY	X	10k 1/16W	M-Ox. AA
C3005	VCEA0A1HW475M+	X	4.7 50V	EL. AB	R355	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C3006	VCEA0A1HW106M+	X	10 50V	EL. AB	R357	VRS-CY1JF822JY	X	8.2k 1/16W	M-Ox. AA
C3007	VCEA0A1HW475M+	X	4.7 50V	EL. AB	R359	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C3008	VCKYCY1HF103ZY	X	0.01 50V	Ceramic AA	R401	VRS-CY1JF101JY	X	100 1/16W	M-Ox. AA
C3009	VCEA0A1CW227M+	X	220 16V	EL. AB	R402	VRS-CY1JF101JY	X	100 1/16W	M-Ox. AA
C3010	VCEA0A1HW475M+	X	4.7 50V	EL. AB	R403	VRS-CY1JF101JY	X	100 1/16W	M-Ox. AA
C3011	VCEA0A1HW475M+	X	4.7 50V	EL. AB	R404	VRD-RA2BE102JY	X	1k 1/8W	Carbon AA
C3012	VCEA0A1HW475M+	X	4.7 50V	EL. AB	R410	VRS-CY1JF471JY	X	470 1/16W	M-Ox. AA
C3013	VCKYCY1HB272KY	X	2700p 50V	Ceramic AA	R411	VRS-CY1JF684JY	X	680k 1/16W	M-Ox. AA
C3014	VCKYCY1CB473KY	X	0.047 16V	Ceramic AA	R412	VRS-CY1JF391JY	X	390 1/16W	M-Ox. AA
C3015	VCEACA1HC335K+	X	3.3 50V	EL. AB	R413	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA
C3016	VCEA0A1HW475M+	X	4.7 50V	EL. AB	R417	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C3017	VCEACA1CC106K+	X	10 16V	EL. AB	R418	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C3018	VCEA0A1HW105M+	X	1 50V	EL. AB	R423	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C3374	VCEA0A1HW225M+	X	2.2 50V	EL. AB	R426	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C3375	VCEA0A1HW225M+	X	2.2 50V	EL. AB	R427	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
C3376	VCKYCY1HB332KY	X	3300p 50V	Ceramic AA	R431	VRS-CY1JF272JY	X	2.7k 1/16W	M-Ox. AA
C3501	VCEA0A1HW106M+	X	10 50V	EL. AB	△ R432	VRD-RA2BE472JY	X	4.7k 1/8W	Carbon AA
C3502	VCEA0A1HW475M+	X	4.7 50V	EL. AB	R453	VRD-RA2BE152JY	X	1.5k 1/8W	Carbon AA
C3503	VCEA0A1HW475M+	X	4.7 50V	EL. AB	R454	VRD-RM2HD184JY	X	180k 1/2W	Carbon AA
RESISTORS									
<i>[M-Ox... Metal Oxide, M-Film ... Metal Film]</i>									
RJ1	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA	R455	VRD-RA2BE392JY	X	3.9k 1/8W	Carbon AA
RJ2	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA	R456	VRS-CY1JF103JY	X	10k 1/16W	M-Ox. AA
					R457	VRD-RA2BE102JY	X	1k 1/8W	Carbon AA
					R458	VRD-RA2EE564JY	X	560k 1/4W	Carbon AA
					R461	VRS-CY1JF274JY	X	270k 1/16W	M-Ox. AA
					R462	VRS-CY1JF563JY	X	56k 1/16W	M-Ox. AA
					R491	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA
					R492	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA
					R493	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA
					R494	VRS-CY1JF472JY	X	4.7k 1/16W	M-Ox. AA

Ref. No.	Part No.	★	Description	Code	Ref. No.	Part No.	★	Description	Code
PWB-A: DUNTKA462WEA0									
MAIN UNIT									
RESISTORS									
<i>[M-Ox... Metal Oxide, M-Film ... Metal Film]</i>									
R495	VRS-RG3DB820J+	X	180k 1/16W	M-Ox. AB	R746	VRS-CY1JF562JY	X	5.6k 1/16W	M-Ox. AA
R496	VRS-CY1JF472JY	X	4.7k 1/16W	M-Ox. AA	R747	VRS-CY1JF682JY	X	6.8k 1/16W	M-Ox. AA
R497	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA	R752	VRD-RA2BE392JY	X	3.9k 1/8W	Carbon AA
R512	VRD-RM2HD102JY	X	1.0k 1/2W	Carbon AA	△ R758	VRS-RG2HC100J+	X	10 1/2W	M-Ox. AB
R513	VRD-RM2HD102JY	X	1.0k 1/2W	Carbon AA	R762	VRS-CY1JF103JY	X	10k 1/16W	M-Ox. AA
R514	VRD-RM2HD1R0JY	X	1 1/2W	Carbon AA	△ R773	VRS-RG3LB270J+	X	27 3W	M-Ox. AB
R515	VRS-RG3DB271J+	X	270 2W	M-Ox. AB	△ R774	VRS-RG3LB680J+	X	68 3W	M-Ox. AB
R516	VRS-CY1JF333JY	X	33k 1/16W	M-Ox. AA	R801	VRD-RM2HD470JY	X	47 1/2W	Carbon AA
R517	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA	R807	VRS-CY1JF332JY	X	3.3k 1/16W	M-Ox. AA
R518	VRS-CY1JF333JY	X	33k 1/16W	M-Ox. AA	R808	VRS-CY1JF272JY	X	2.7k 1/16W	M-Ox. AA
R519	VRS-CY1JF103JY	X	10k 1/16W	M-Ox. AA	R809	VRS-CY1JF223JY	X	22k 1/16W	M-Ox. AA
R520	VRN-RL3AB1R0J+	X	1.0 1W	M-Film AB	R810	VRS-CY1JF223JY	X	22k 1/16W	M-Ox. AA
R522	VRS-CY1JF122JY	X	1.2k 1/16W	M-Ox. AA	R816	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
R523	VRS-CY1JF392JY	X	3.9k 1/16W	M-Ox. AA	R925	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA
R525	VRS-CY1JF272JY	X	2.7k 1/16W	M-Ox. AA	R926	VRS-CY1JF104JY	X	100k 1/16W	M-Ox. AA
R527	VRS-CY1JF472JY	X	4.7k 1/16W	M-Ox. AA	R961	VRD-RA2BE101JY	X	100 1/8W	Carbon AA
△ R604	VRS-RG3LB472J+	X	4.7k 3W	M-Ox. AB	R962	VRD-RA2BE101JY	X	100 1/8W	Carbon AA
R605	VRD-RA2BE121JY	X	120 1/8W	Carbon AA	R1401	VRS-CY1JF101JY	X	100 1/16W	M-Ox. AA
R606	VRD-RA2BE102JY	X	1k 1/8W	Carbon AA	R1402	VRS-CY1JF750JY	X	75 1/16W	M-Ox. AA
△ R607	VRS-RG3LB472J+	X	4.7k 3W	M-Ox. AB	R1403	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA
△ R609	VRS-RG3AB562J+	X	5.6k 1W	M-Ox. AB	R1404	VRS-CY1JF104JY	X	100k 1/16W	M-Ox. AA
R610	VRD-RM2HD220JY	X	22 1/2W	Carbon AA	R1410	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
△ R611	VRS-KA3NG3R3K	X	3.3 7.0W	M-Ox. AB	R1419	VRD-RA2BE101JY	X	100 1/8W	Carbon AA
R612	VRS-RG2HC102J+	X	1k 1/2W	M-Ox. AB	R1420	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA
△ R621	VRN-RL3DB1R2J+	X	1.2 2W	M-Film AB	R1421	VRS-CY1JF103JY	X	10k 1/16W	M-Ox. AA
R622	VRD-RA2BE222JY	X	2.2k 1/8W	Carbon AA	R1422	VRD-RA2BE101JY	X	100 1/8W	Carbon AA
R623	VRS-CY1JF103JY	X	10k 1/16W	M-Ox. AA	R1423	VRS-CY1JF822JY	X	8.2k 1/16W	M-Ox. AA
R624	VRN-RA2BK472FY	X	4.7k 1/8W	M-Film AB	R1426	VRD-RA2BE750JY	X	75 1/8W	Carbon AA
R634	VRD-RM2HD121JY	X	120 1/2W	Carbon AA	R1428	VRD-RA2BE750JY	X	75 1/8W	Carbon AA
R635	VRS-CY1JF332JY	X	3.3k 1/16W	M-Ox. AA	R1429	VRS-CY1JF101JY	X	100 1/16W	M-Ox. AA
R636	VRD-RA2EE221JY	X	220 1/4W	Carbon AA	R1431	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA
△ R641	VRS-RG3AB682J+	X	6.8k 1W	M-Ox. AB	R1432	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA
▲ △ R651	VRS-RG2HC270J+	X	27 1/2W	M-Ox. AB	R1434	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
▲ △ R653	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA	R1435	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA
▲ △ R654	VRS-CY1JF154JY	X	150k 1/16W	M-Ox. AA	R1440	VRS-CY1JF563JY	X	56k 1/16W	M-Ox. AA
▲ △ R655	VRS-CY1JF103JY	X	10k 1/16W	M-Ox. AA	R2001	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA
R656	VRS-CY1JF273JY	X	27k 1/16W	M-Ox. AA	R2002	VRS-CY1JF103JY	X	10k 1/16W	M-Ox. AA
R657	VRS-CY1JF273JY	X	27k 1/16W	M-Ox. AA	R2006	VRS-CY1JF103JY	X	10k 1/16W	M-Ox. AA
R658	VRS-CY1JF103JY	X	10k 1/16W	M-Ox. AA	R2008	VRS-CY1JF472JY	X	4.7k 1/16W	M-Ox. AA
R659	VRD-RA2BE332JY	X	3.3k 1/8W	Carbon AA	R2009	VRD-RA2BE102JY	X	1k 1/8W	Carbon AA
△ R661	VRN-RL3ABR47J+	X	0.47 1W	M-Film AB	R2010	VRD-RA2BE102JY	X	1k 1/8W	Carbon AA
△ R701	RR-DZ0049CEZZY	X	3.9M 1/2W	Solid AB	R2012	VRD-RA2BE101JY	X	100 1/8W	Carbon AA
△ R703	VRW-KQ3NC1R2K	X	1.2 7W	Cement AB	R2016	VRD-RA2BE223JY	X	22k 1/8W	Carbon AA
R705	VRN-RL3ABR33J+	X	.33 1W	M-Film AB	R2018	VRS-CY1JF103JY	X	10k 1/16W	M-Ox. AA
R706	VRN-RL3ABR22J+	X	0.22 1W	M-Film AB	R2020	VRS-CY1JF223JY	X	22k 1/16W	M-Ox. AA
R707	VRD-RM2HD270JY	X	27 1/2W	Carbon AA	R2022	VRS-CY1JF333JY	X	33k 1/16W	M-Ox. AA
R708	VRS-CY1JF102JY	X	1k 1/16W	M-Ox. AA	R2023	VRS-CY1JF223JY	X	22k 1/16W	M-Ox. AA
R710	VRS-RG2HC103J+	X	10k 1/2W	M-Ox. AB	R2024	VRD-RA2BE682JY	X	6.8k 1/8W	Carbon AA
R711	VRD-RA2BE334JY	X	330k 1/8W	Carbon AA	R2025	VRD-RA2BE682JY	X	6.8k 1/8W	Carbon AA
R712	VRD-RA2BE100JY	X	10 1/8W	Carbon AA	R2026	VRD-RA2BE682JY	X	6.8k 1/8W	Carbon AA
R713	VRS-RG2HC122J+	X	1.2k 1/2W	M-Ox. AB	R2027	VRD-RA2BE682JY	X	6.8k 1/8W	Carbon AA
R715	VRD-RA2BE150JY	X	15 1/8W	Carbon AA	R2028	VRD-RA2BE102JY	X	1k 1/8W	Carbon AA
R716	VRS-RG3AB121J+	X	120 1W	M-Ox. AB	R2029	VRS-CY1JF103JY	X	10k 1/16W	M-Ox. AA
R730	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA	R2032	VRD-RA2BE471JY	X	470 1/8W	Carbon AA
R731	VRS-RG2HC821J+	X	820 1/2W	M-Ox. AB	R2033	VRD-RA2BE334JY	X	330k 1/8W	Carbon AA
R733	VRS-SV2HC332J	X	3.3k 1/2W	M-Ox. AB	R2034	VRS-CY1JF334JY	X	330k 1/16W	M-Ox. AA
R736	VRS-SV2HC222J	X	2.2k 1/2W	M-Ox. AB	R2040	VRD-RA2BE102JY	X	1k 1/8W	Carbon AA
△ R737	VRN-RL3ABR39J+	X	0.39 1W	M-Ox. AB	R2041	VRD-RA2BE333JY	X	33k 1/8W	Carbon AA
R740	VRD-RM2HD470JY	X	47 1/2W	Carbon AA	R2042	VRS-CY1JF101JY	X	100 1/16W	M-Ox. AA
R742	VRS-CY1JF000JY	X	00 1/16W	M-Ox. AA	R2043	VRD-RA2BE101JY	X	100 1/8W	Carbon AA
△ R744	VRN-RL2HCR68J+	X	0.68 1/2W	M-Film AB	R2044	VRS-CY1JF683JY	X	68k 1/16W	M-Ox. AA
R745	VRD-RA2BE393JY	X	39k 1/8W	Carbon AA	R2045	VRD-RA2BE101JY	X	100 1/8W	Carbon AA
					R2047	VRS-CY1JF221JY	X	220 1/16W	M-Ox. AA
					R2048	VRS-CY1JF562JY	X	5.6k 1/16W	M-Ox. AA
					R2049	VRD-RA2BE333JY	X	33k 1/8W	Carbon AA
					R2060	VRS-CY1JF221JY	X	220 1/16W	M-Ox. AA
					R2061	VRS-CY1JF562JY	X	5.6k 1/16W	M-Ox. AA
					R2062	VRS-CY1JF183JY	X	18k 1/16W	M-Ox. AA
					R2063	VRS-CY1JF222JY	X	2.2k 1/16W	M-Ox. AA

Ref. No. Part No. ★ Description Code

PWB-A: DUNTKA462WEA0 MAIN UNIT

RESISTORS

[M-Ox... Metal Oxide, M-Film ... Metal Film]

R2064	VRD-RA2BE391JY	X	390	1/8W	Carbon	AA
R2065	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
R2067	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R2068	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R2069	VRD-RA2BE102JY	X	1k	1/8W	Carbon	AA
R2070	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R2072	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R2101	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R2102	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R2201	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R2202	VRS-CY1JF473JY	X	47k	1/16W	M-Ox.	AA
R2203	VRS-CY1JF332JY	X	3.3k	1/16W	M-Ox.	AA
R2211	VRS-CY1JF222JY	X	2.2k	1/16W	M-Ox.	AA
R2212	VRS-CY1JF682JY	X	6.8k	1/16W	M-Ox.	AA
R2213	VRS-CY1JF223JY	X	22k	1/16W	M-Ox.	AA
R2401	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R2402	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R2403	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R2404	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R2501	VRD-RA2BE123JY	X	12k	1/8W	Carbon	AA
R2503	VRS-CY1JF273JY	X	27k	1/16W	M-Ox.	AA
R2504	VRS-CY1JF123JY	X	12k	1/16W	M-Ox.	AA
R2505	VRS-CY1JF563JY	X	56k	1/16W	M-Ox.	AA
R2506	VRS-CY1JF563JY	X	56k	1/16W	M-Ox.	AA
R2507	VRS-CY1JF823JY	X	82k	1/16W	M-Ox.	AA
R2508	VRS-CY1JF153JY	X	15k	1/16W	M-Ox.	AA
R2509	VRS-CY1JF272JY	X	2.7k	1/16W	M-Ox.	AA
R2601	VRD-RA2BE100JY	X	10	1/8W	Carbon	AA
R2602	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
R2604	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
R2605	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
R3001	VRD-RA2BE221JY	X	220	1/8W	Carbon	AA
R3002	VRD-RA2BE221JY	X	220	1/8W	Carbon	AA
R3003	VRS-CY1JF105JY	X	1M	1/16W	M-Ox.	AA
R3004	VRS-CY1JF104JY	X	100k	1/16W	M-Ox.	AA
R3005	VRS-CY1JF623JY	X	62k	1/16W	M-Ox.	AA
R3007	VRS-CY1JF332JY	X	3.3k	1/16W	M-Ox.	AA
R3008	VRS-CY1JF302JY	X	3k	1/16W	M-Ox.	AA
R3010	VRS-CY1JF392JY	X	3.9k	1/16W	M-Ox.	AA
R3011	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R3012	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R3013	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R3014	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R3373	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
R3374	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R3375	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
R3377	VRD-RA2BE822JY	X	8.2k	1/8W	Carbon	AA
R3378	VRD-RA2BE223JY	X	22k	1/8W	Carbon	AA
R3379	VRS-CY1JF683JY	X	68k	1/16W	M-Ox.	AA
R3501	VRS-CY1JF750JY	X	75	1/16W	M-Ox.	AA
R3502	VRS-CY1JF104JY	X	100k	1/16W	M-Ox.	AA
R3503	VRS-CY1JF104JY	X	100k	1/16W	M-Ox.	AA
R3504	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R3507	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R3508	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA

SWITCHES

S2501	QSW-K0202PEZZ+	X	Switch,	AB
S2502	QSW-K0202PEZZ+	X	Switch,	AB
S2503	QSW-K0202PEZZ+	X	Switch,	AB
S2504	QSW-K0202PEZZ+	X	Switch,	AB
S2505	QSW-K0202PEZZ+	X	Switch,	AB
S2506	QSW-K0202PEZZ+	X	Switch,	AB

Ref. No. Part No. ★ Description Code

MISCELLANEOUS PARTS

RY701	RRLYJ0081CEZZ	X	Relay	AD
F701	QFS-B4023CEZZ	X	FUSE - 4A 125V	AB
FB601	RBLN-0047CEZZY	X	FERRITE BEAD	AB
FH701	QFSHD1013CEZZ+	X	FUSE CLIP	AB
FH702	QFSHD1014CEZZ+	X	FUSE CLIP	AB
FB2002	RBLN-0037CEZZY	X	FERRITE BEAD	AB
J1401	QJAKGA009WJZZ	X	Front A/V Jack	AC
J1404	QSOCD0430CEZZ	X	S-Video terminal	AC
J1701	QTANJ0340CEZZ	X	Rear A/V Terminal	AD
P303	QPLGN0461CEZZA	X	Plug, 4pin(S1-4)	AB
P401	QPLGN0561CEZZA	X	Plug, 5Pin(KA)	AB
P601	QPLGN0160FJZZ	X	Plug, 5pin(K1-5)	AB
P651	QPLGN0361CEZZA	X	Plug, 3pin (TP651-3)	AB
P701	QPLGN0260CEZZ	X	Plug, 2pin (M1-2)	AB
P751	QPLGN0461CEZZA	X	Plug, 4pin(S1-4)	AB
P2001	QPLGN0561CEZZA	X	Plug, 5Pin(KA)	AB
RMC2601	RRMCU0222CEZZ	X	R/C RECEIVER	AD
RDA501	PRDAR0280PEFW	X	Heat Sink, for IC501	AC
RDA604	PRDAR0233PEFW	X	Heat Sink, for Q602	AD
RDA701	PRDAR0265PEFW	X	Heat Sink, for Q701	AB
	TLABM0002GJZZ	X	Model Label	AB
	LX-BZ3049GEFD	X	Screw	AA
	LX-BZ3100CEFD	X	Screw	AA
	LX-TZ3004CEFD	X	Screw	AA

PWB-A: DUNTK9510WEV1 CRT Unit

TRANSISTORS

Q851	VS2SC3198-G-1+	X	2SC3198-G	AB
Q852	VS2SC3789//2E	X	2SC3789	AB
Q853	VS2SC3198-G-1+	X	2SC3198-G	AB
Q854	VS2SC3789//2E	X	2SC3789	AB
Q855	VS2SC3198-G-1+	X	2SC3198-G	AB
Q856	VS2SC3789//2E	X	2SC3789	AB
Q881	VS2SA1266-Y-1+	X	2SA1266(Y)	AB

COIL

L851	VP-MK820K0000+	X	Peaking 82mH	AB
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CAPACITORS

[EL... Electrolytic, M-Poly... Metalized Polypro Film]

C851	VCCSPA1HL391J+	X	390p 50V	Ceramic	AB
C852	VCCSPA1HL331J+	X	330p 50V	Ceramic	AB
C853	VCCSPA1HL391J+	X	390p 50V	Ceramic	AB
C854	RC-KZ0024CEZZ	X	1000p 2kV	M.Poly.	AB
C883	VCEA0A1HW106M+	X	10 50V	EL.	AB

RESISTORS

[M-Ox... Metal Oxide, M-Film ... Metal Film]

R851	VRD-RA2BE470JY	X	47 1/8W	Carbon	AA
R852	VRD-RA2BE181JY	X	180 1/8W	Carbon	AA
R853	VRD-RA2BE121JY	X	120 1/8W	Carbon	AA
R855	VRD-RA2BE471JY	X	470 1/8W	Carbon	AA
R856	VRD-RA2BE221JY	X	220 1/8W	Carbon	AA
R857	VRS-VV3LB123J	X	12k 3W	M-Ox.	AB
R858	VRD-RM2HD222JY	X	2.2k 1/2W	Carbon	AA
R859	VRD-RA2BE470JY	X	47 1/8W	Carbon	AA
R860	VRD-RA2BE181JY	X	180 1/8W	Carbon	AA
R861	VRD-RA2BE121JY	X	120 1/8W	Carbon	AA
R863	VRD-RA2BE471JY	X	470 1/8W	Carbon	AA
R864	VRD-RA2BE221JY	X	220 1/8W	Carbon	AA
R865	VRS-VV3LB123J	X	12k 3W	M-Ox.	AB
R866	VRD-RM2HD222JY	X	2.2k 1/2W	Carbon	AA
R867	VRD-RA2BE470JY	X	47 1/8W	Carbon	AA
R868	VRD-RA2BE181JY	X	180 1/8W	Carbon	AA

Ref. No. Part No. ★ Description Code

**PWB-A: DUNTKC290WEA4
MAIN UNIT**

RESISTORS

[M-Ox... Metal Oxide, M-Film ... Metal Film]

R869	VRD-RA2BE121JY	X	120	1/8W	Carbon	AA
R871	VRD-RA2BE471JY	X	470	1/8W	Carbon	AA
R872	VRD-RA2BE221JY	X	220	1/8W	Carbon	AA
△ R873	VRS-VV3LB123J	X	12k	3W	M-Ox.	AB
R874	VRD-RM2HD222JY	X	2.2k	1/2W	Carbon	AA
R881	VRD-RA2BE102JY	X	1k	1/8W	Carbon	AA
R882	VRD-RA2BE331JY	X	330	1/8W	Carbon	AA
R883	VRD-RA2BE561JY	X	560	1/8W	Carbon	AA
R884	VRD-RA2BE152JY	X	1.5k	1/8W	Carbon	AA
R895	VRD-RA2BE470JY	X	47	1/8W	Carbon	AA
P851	QPLGN0541CEZZ	X	Plug, 5-pin(GBN)			AB
P852	QPLGN0441CEZZ	X	Plug, 4Pin(RAV)			AB
SC851	QSOCV0937CEZZ	X	CRT Socket			AC
ACC701	QACCCA015WJPZ	X	AC Cord			AE
	LHLDK0014PEZZ	X	AC Cord holder			AB
	LHLDW1003PEZZ	X	Purse lock (0.5cm diam)			AA
	LHLDW1007MEKZ	X	Wire tie (36.4 cm)			AB
	LHLDW1009PEZZ	X	Purse lock (0.115 CM DIAM)			AB
	LHLDW1033PEZZ	X	Wire tie (10.4 CM)			AA
	LHLDW1060CEZZ	X	Purse lock (0.83 CM DIAM)			AB
	LHLDZ1037MEZZ	X	Insulator ring holder			AB
	LX-TZ0104GJFD	X	Screw (CRT)			AB
	LX-WZ0112GJFD	X	TV washer (m8 x 16 x 1.2)			AB
	PSPAHO110GJ00	X	Himeron (550X7)			AB
	PSPAN0103GJZZ	X	Spacer for cabinet			AB
	QCNW-0134MEZZ	X	WIRE SPEAKER			AB
	QCNW-0166MEZZ	X	WIRE (GBN)			AB
	QCNW-0167MEZZ	X	WIRE (YBN)			AB
	TCAUH3045GJZZ	X	caution card			AB
	TLABN0101GJZZ	X	Remark label(chassis ID)			AB
	VSP9050PB40YA	X	speaker			AE
	VSP9050PB40YA	X	speaker			AE
	XTASD30P12000	X	Screw(BTN)			AA
	XTASD40P20000	X	Screw (Cab)			AA

Ref. No. Part No. ★ Description Code

SUPPLIED ACCESSORIES

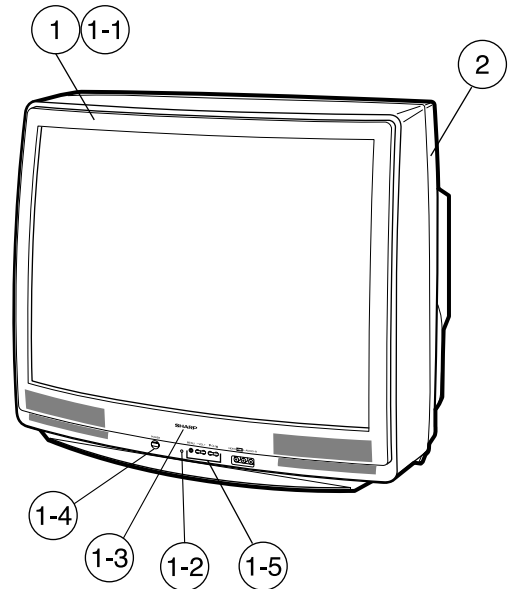
TINS-B161WJZZ	X	operation manual	AD
RRMCG1324CESC	X	Infrared R-C Unit	AH
TGAN-A216WJN1	X	warranty card	AB

**PACKING PARTS
(NOT REPLACEMENT ITEM)**

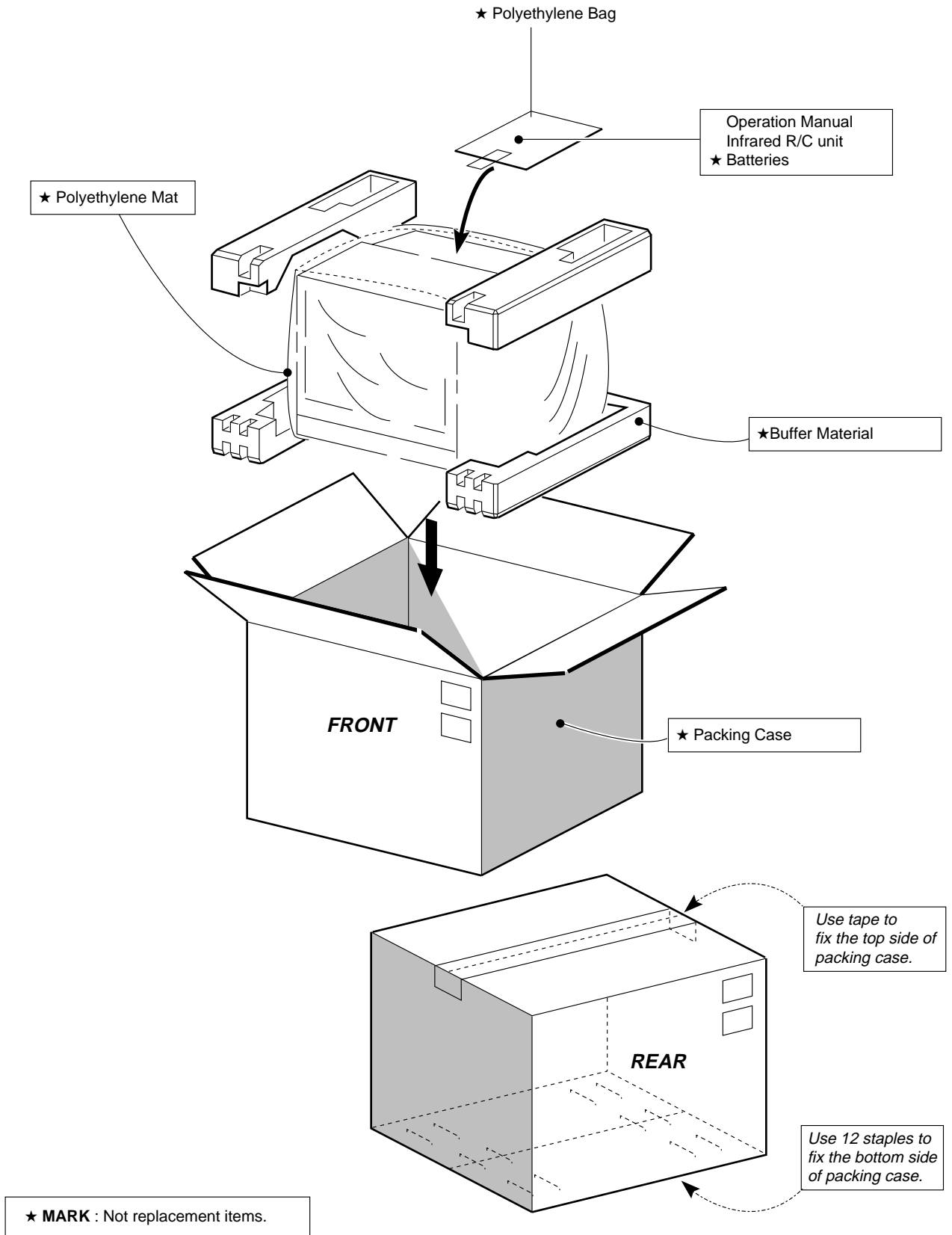
SPAKCB232WJZZ	X	Packing Case	AS
SPAKP0109GJZZ	X	Wrapping Paper	AE
SPAKX0134GJZZ	X	Buffer Material	AL
SSAKA0101GJZZ	X	Polyethylene Bag	AB

CABINET PARTS

1	CCABA0177WEH8	X	Front Cabinet Ass'y	BC
1-1	Not Available	—	Front Cabinet	—
1-2	GCOVA0121GJSA	X	RC/LED Cover	AC
1-3	HBDGB1009MESB	X	BADGE (SHARP PLASTIC)	AC
1-4	JBTN-0138GJKC	X	Power button	AE
1-5	JBTN-0139GJSC	X	Button, CH-Up/Down, VOL-Up/Down, Menu	AF
2	GCABB0153GJKA	X	REAR CABINET	AY



PACKING OF THE SET



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QRC0015-U
March. 2004
Modify : SEMEX

Design and Production Information

Design : SEM
Production : SEMEX

J B

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